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10/814,731	03/31/2004	Yoram Ofek	OFE 1854	9871

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EXAMINER	
AYOTUNDE, AYODEJI O	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/814,731	**Applicant(s)** OFEK ET AL.	
	Examiner AYODEJI AYOTUNDE	**Art Unit** 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 19 January 2010.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-57 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-57 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 19, 2010 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1, 43 and 54 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: ***(See MPEP Ch. 2141)***

a. Determining the scope and contents of the prior art;

b. Ascertaining the differences between the prior art and the claims in issue;
c. Resolving the level of ordinary skill in the pertinent art; and
d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

Claims 1-42 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Silva et al., US2004/0224637 A1 (hereinafter, "Silva") and further in view of Katz et al. US6,393,303 B1 (hereinafter, "Katz")

Re-claim 1, Silva teaches a wireless system for transmitting and receiving a plurality of data packets **(par. 0029; this section generally describes a directed wireless communication having a multi-beam directed signal system can be implemented to communicate with multiple devices over wireless communication link via an Antenna assembly.)**, the system comprising: a plurality of directional antenna sectors each having a respective associated three-dimensional region of space for transmitting and receiving electromagnetic signals **(fig. 3 item 302, par. 0041-0042; these sections generally overall discuss and exhibit an antenna array 302 with an exemplary communication beam array 300 of directed communication beams (transmitting and receiving beams) 214(1), 214(2), …., 214(N) that emanate from antenna array 302 having a plurality of antenna elements to communicate (transmit or receive) to a desired receiving node such as another wireless routing device or a wireless client device.)**; at least one receiving controller at a first location **(fig. 8B item 816 822, par. 0069; this section discusses and exhibits both a multi-beam controller 816 and a scanning receiver 822 of the multi-beam directed signal system 206 located in the (access station, fig. 2 102).)**; wherein said at least one receiving controllers is selectively coupled to each one of the plurality of the directional antenna

sectors, one at a time, to measure received electromagnetic signal characteristics to determine a best-received electromagnetic signal **(fig. 8B item 304 816 810, par. 0069-0070; these sections overall exhibit and discuss the multi-beam controller 816 with the signal control/coordination logic 304 of the multi-beam directed signal system 206 selectively coupled to the Receive Beam-Forming Network 810, and the multi-beam controller 816 (e.g., any of a processor, controller, logic, circuitry, etc.) can be implemented to control channel assignments for communication signals and data communication coordinated by the signal control and coordination logic 304 while the signal control and coordination logic 304 provides the best channel assignment for a signal based on given measurement information.)**; wherein at least one of said receiving controllers is responsive to the measure of the received electromagnetic signal characteristics from each of the plurality of directional antenna sectors to select one of the directional antenna sectors as a selected directional antenna sector prior to the transmission of at least one data packet **(par. 0204-0205; these sections overall discusses the multi-beam directed signal system 206 (e.g., access station 102) continues to sample and collect receive strength signal indications (RSSI) values for each data packet received from the client device and the scanning receiver 822 measures the RSSIs and calculates a smoothed RSSI value (SmoothedRSSIValue) for the client device on each of the adjacent ports (e.g., communication beams), then the samples of the RSSI window size (RSSIWindowSize) for the two adjacent ports are averaged and compared to the same parameter for the current communication beam to determine the best, or most effective, communication beam.), (This usually**

happens before the signal (data packets) finally gets transmitted from the selected antenna beam to the mobile station.). Silva fails to teach the following recited limitations as shown below. However, Kats teaches at least one transmitting controller at a first location **(fig. 2 item 21, col. 8 lines 37-53; this section generally discusses and exhibits a digital signal processor 21 (controller) of the base transceiver station (BTS) having eight outputs 22a-h, each of which outputs a digital signal representing the signal which is to be transmitted to a given MS (mobile station).)**; and wherein at least one of said transmitting controllers is selectively coupled to the directional antenna sectors for transmitting said at least one data packet via the selected directional antenna sector **(fig. 2 item 6 8 21, col. 7 lines 15-36 and col. 8 lines 37-53; this section as a whole generally exhibits as well as discusses a digital signal processor 21 coupled to the antenna array 6 through the butler matrix circuitry 8 and allowing the antenna array to be controlled to transmit a signal (data packet) to a MS only in the direction of beam b5 or only in the direction of beam b6 as well as also transmitting a signal in more than one beam direction at the same time.)**.

Motivation to combine may be gleaned from the prior are contemplated. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include at least one transmitting controller at a first location and wherein at least one of said transmitting controllers is selectively coupled to the directional antenna sectors for transmitting said at least one data packet via the selected directional antenna sector in the device of Silva because such feature taught by Katz provide an improved method and apparatus for directional radio communication **(col. 2 lines 51-53)**.

Claims 2-3 have been analyzed and rejected with respect to claim 1 above.

Re-claim 4, the combination of Silva and Katz as a whole further teach wherein a selected one of said at least one receiving controller selects at least one of the directional antenna sectors within an order dependent upon history of the received electromagnetic signal characteristics prior to the transmission of at least one data packet **(Silva, fig. 8B item 818 par. 0092, 0122-0123, and 0131; these section generally discusses and exhibits a memory component 818 where the metrics are maintained in one or more routing tables or similar data structures such as received signal strength indicator (RSSI) level from a node.), (This usually takes place before signal (data packets) gets transmitted to the mobile station after selecting the proper antenna beam direction.)**.

Re-claim 5, the combination of Silva and Katz as a whole further teach wherein the plurality of directional antenna sectors are part of at least one of: a mobile device, a laptop computer, a desktop computer, a personal digital assistant (PDA), a cordless phone, a wireless phone, a cellular phone, a 2.5G cellular phone, a 3G device, a 4G device, a 5G device, a multimedia device, a GPS (global positioning system) receiver, an electronic book, electronic paper, an automotive, a boat, a ship, an airplane, a train, a satellite, a hand-held device, a base station, an access point, an access router, a UAV (unmanned aerial vehicle), and a packet switch output **(Silva, fig. 2 item 102 par. 0036;**

this section discusses and exhibits the access station 102 (access point and base station) includes a multi-beam directed signal system 206 coupled to an antenna assembly 208 via a communication link 210.).

Re-claim 6, the combination of Silva and Katz as a whole further teach wherein the receiving controller is part of at least one of: a mobile device, a laptop computer, a personal digital assistant, a cordless phone, a wireless phone, voice-over IP, a RFID (radio frequency identifier), a cellular phone, a 2.5G cellular phone, a 3G device, a 4G device, a 5G device, a multimedia device, a GPS (global positioning system) receiver, an electronic book, electronic paper, and a packet switch **(Silva, fig. 1 items 104(1)…104(N) par. 0035; this section discusses and exhibits the remote client devices 104 may be, for example, a hand-held device, a desktop or laptop computer, an expansion card or similar that is coupled to a desktop or laptop computer, a personal digital assistant (PDA), a mobile phone, a vehicle having a wireless communication device, a tablet or hand/palm-sized computer, a portable inventory-related scanning device, any device capable of processing generally, some combination thereof, and the like. Further, a client device 104 may be any device implemented to receive and/or transmit information (e.g., in the form of data packets) via the applicable wireless communication links 106. It is also well known in the art that a remote client device will always have some type of processor (receiving controller) in the remote client device(s).)**.

Re-claim 7, the combination of Silva and Katz as a whole further teach wherein at least one of the plurality of directional antenna sectors are polarized antennas, and wherein each said polarized antenna sector transmits an electromagnetic signal in a defined polarization **(Silva, par. 0031-0032; these sections generally discusses directed wireless communication providing improved performance by utilizing multi-beam transceiving adaptive antennas for eliminating the need for multiple access points and significantly reducing the complexity of wireless LAN network. It is also well known in that art of practice that multi-beam receiving and/or transmitting adaptive antennas are polarized antennas and are often used in directed wireless communications.)**.

Re-claim 11, the combination of Silva and Katz as a whole further teach wherein selected ones of the directional antenna sectors are steered antennas, wherein the steered antennas receive and transmit electromagnetic signals within a defined region in at least one of: two-dimensional space and three-dimensional space **(Silva, par. 0047; this section generally discusses the directed communication beams 214 of antenna array 302 can be directionally controllable, such as steerable in an analog implementation or stepable in a digital implementation.)**.

Re-claim 12, the combination of Silva and Katz as a whole further teach wherein the steered antenna sectors are moveable by at least one of: a step-motor, an electric motor, an electric field, a magnetic field, and a phase array **(Silva, par. 0047; this**

section discusses that a directed communication beam 214 can be directionally stepable by the width (e.g., degrees) of the communication beam to "steer" or "aim" addressable data packets when communicating with a client device which generally reads on the step-motor.).

Re-claim 13, the combination of Silva and Katz as a whole further teach wherein the directional antenna sectors are arranged in a predefined pattern; and wherein the predefined pattern is at least one of: polyhedron, polygon, octahedron, pentagon, cube, pyramid, sectorized cylinder, ball, pentagondodecahedron, and icositetrahedron **(Silva, fig. 3 item 300 par. 0044; this section generally discusses and shows communication beam array 300 shown in FIG. 3 is merely exemplary and other communication beam arrays, or patterns, may differ in width, shape, number, angular coverage, azimuth, and so forth. This means that anyone one of the shapes (patterns) could be by original design the followings such as polyhedron, polygon, octahedron, pentagon, cube, pyramid, sectorized cylinder, ball, pentagondodecahedron, and icositetrahedron.)**.

Re-claim 14, the combination of Silva and Katz as a whole further teach wherein there is a plurality of receiving controllers, the system further comprising: a receiving switch; and wherein selected ones of the receiving controllers are selectively coupled to selected ones of the directional antenna sectors utilizing the receiving switch **(Katz, fig. 2 items 8 14 18 20 21 col. 7 line 55 – col. 8 line 36; this section generally discusses and**

exhibits a digital signal processor 21 (receiving controllers) connected to a plurality of processors 18 through multiple A/D converters 20 that is coupled to the antenna elements through the butler matrix circuitry 8. It is well known in the art that a receiving switch is incorporated in the butler matrix circuitry to the antenna elements.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein there is a plurality of receiving controllers, the system further comprising: a receiving switch; and wherein selected ones of the receiving controllers are selectively coupled to selected ones of the directional antenna sectors utilizing the receiving switch in the device of Silva because such feature taught by Katz provide an improved method and apparatus for directional radio communication **(col. 2 lines 51-53)**.

Re-claim 15, the combination of Silva and Katz as a whole further teach wherein the receiving switch is constructed by utilizing high impedance amplifiers **(Katz, fig. 2 item 16 col. 8 lines 20-23; this section generally discusses and shows that each output 14a-h of the Butler matrix circuitry 8 is connected to the input of a respective amplifier 16 which amplifies the received signal and that one amplifier 16 is provided for each output 14a-h of the Butler matrix circuitry 8. It is commonly well known in the art of practice that amplifiers 16 are high impedance amplifiers in a base transceiver station 4 of figure 2.)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the receiving switch is constructed by utilizing high impedance amplifiers in the device of Silva because such feature taught by Katz provide an improved method and apparatus for directional radio communication **(col. 2 lines 51-53)**.

Re-claim 16, the combination of Silva and Katz as a whole further teach a plurality of receiver radio frequencies devices (RRFs) **(Katz, fig. 2 item 21; this drawing shows a digital signal processor 21 of a BTS (base transceiver station) 4 having a plurality of A/D converters 20. It is commonly well known that a BTS 4 will have plurality of receivers with a digital signal processor 21 and a plurality of A/D converters 20.)**; wherein the receiving switch has N inputs and R outputs **(Katz, fig. 2 item 16; this drawing shows multiple amplifiers 16 (receiving switch) having its own input and output in a BTS 4.)**; wherein the N inputs are selectively connected to the directional antenna sectors **(Katz, fig. 2 item 14a–h; this drawing shows eight inputs 14a-h (N inputs) being connected to the antenna elements (directional antenna sectors) through butler matrix circuitry 8.)**; and wherein the R outputs are selectively connected to selected ones of the plurality of the RRFs **(Katz, fig. 2 item 19a–h; this drawing shows inputs 19a-h (R outputs) being connected to the digital signal processor for further processing received signals in a plurality of radio receivers.)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a plurality of receiver radio frequencies devices (RRFs); wherein the receiving switch has N inputs and R outputs; wherein the N inputs are selectively connected to the directional antenna sectors, and wherein the R outputs are selectively connected to selected ones of the plurality of the RRFs in the device of Silva because such feature taught by Katz provide an improved method and apparatus for directional radio communication **(col. 2 lines 51-53)**.

Re-claim 18, the combination of Silva and Katz as a whole further teach wherein there is a plurality of the transmitting controllers, the system further comprising: a transmitting switch; and wherein selected ones of the transmitting controllers are selectively coupled to at least one of the directional antenna sectors utilizing the transmitting switch **(Katz, fig. 2 items 8 10a-h 22 21 24a-h col. 7 line 55 – col. 8 line 36; this section generally discusses and exhibits a digital signal processor 21 (transmitting controllers) connected to a plurality of processors 24 through multiple D/A converters 22 that is coupled to the antenna elements through the butler matrix circuitry 8. It is well known in the art that a transmitting switch is incorporated in the butler matrix circuitry to the antenna elements.)**.

Re-claim 19, the combination of Silva and Katz as a whole further teach wherein the transmitting switch is comprised of high impedance amplifiers **(Katz, fig. 2 item 26 col. 8 lines 49-51; this section generally discusses and shows resulting signal is then**

amplified by an amplifier 26 and passed to the respective input 10a-h of the Butler matrix circuitry 8. It is commonly well known in the art of practice that amplifiers 26 are high impedance amplifiers in a base transceiver station 4 of figure 2.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include wherein the transmitting switch is comprised of high impedance amplifiers in the device of Silva because such feature taught by Katz provide an improved method and apparatus for directional radio communication **(col. 2 lines 51-53)**.

Re-claim 20, the combination of Silva and Katz as a whole further teach a plurality of transmitter radio frequencies devices (TRFs) **(Katz, fig. 2 item 21; this drawing shows a digital signal processor 21 of a BTS (base transceiver station) 4 having a plurality of D/A converters 22. It is commonly well known that a BTS 4 will have plurality of transmitters with a digital signal processor 21 and a plurality of D/A converters 22.)**; wherein the transmitting switch has T inputs and N outputs **(Katz, fig. 2 item 16; this drawing shows multiple amplifiers 26 (transmitting switch) having its own input and output in a BTS 4.)**; wherein the N outputs are selectively connected to the directional antenna sectors **(Katz, fig. 2 item 14a–h; this drawing shows eight outputs 10a-h (N outputs) being connected to the antenna elements (directional antenna sectors) through butler matrix circuitry 8.)**, and wherein the T inputs are connected to selected ones of the plurality of the TRFs **(Katz, fig. 2 item 19a–h; this drawing shows inputs 10a-h (T inputs) being connected to the digital signal**

processor for further processing transmitted signals in a plurality of radio transmitters.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a plurality of transmitter radio frequencies devices (TRFs); wherein the transmitting switch has T inputs and N outputs; wherein the N outputs are selectively connected to the directional antenna sectors, and wherein the T inputs are connected to selected ones of the plurality of the TRFs in the device of Silva because such feature taught by Katz provide an improved method and apparatus for directional radio communication **(col. 2 lines 51-53)**.

Re-claims 8-10, 17, 21-42 and 52, Silva in combination of Katz did not explicitly disclose all of the claimed limitations. However, the examiner takes official notice that these limitations are well known in the art and it would have been obvious to one of ordinary skill in the art to have those limitations in order to route data communication transmissions to the client devices via directed communication beams that are emanated from an antenna assembly, and a receive beam-forming network receives data communication receptions from the client devices via the directed communication beams **(par. 0008)** as noted in Silva and to provide a radiation beam in a plurality of beam directions, wherein each of the beam directions is individually selectable as well as the information may be used to determine the relative power levels and may be used to determine the principal direction as noted in Katz **(col. 5 lines 42-59)**.

Claims 43-51, 53-57 are rejected as a method as applied to claims 1-42 and 52 above because the scope and content of the recited limitations are substantially the same.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AYODEJI AYOTUNDE whose telephone number is (571)270-7983. The examiner can normally be reached on Monday through Thursday, 7am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AYODEJI AYOTUNDE/
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/Duc Nguyen/

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